Market Demand for Civic Affairs News*

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This paper uses time series methods to test the relationship between civic affairs content and audience share for the ABC, NBC and CBS evening news in the mid-1990s. Because these programs competed in the same market, but varied the amount of their civic affairs coverage, they present an excellent opportunity to test this relationship. The study uses hand-coded news abstracts and amount of coverage of the O.J. Simpson murder trial as separate measures of news content. The study finds that lower levels of civic affairs content and higher levels of O.J. news are associated with higher audience share.

Much commentary on the news media exhorts journalists to produce less soft news and more coverage of civic affairs. One reason for this position is that, as media critics argue, soft news drives off core news consumers without retaining marginal ones, thereby contributing to the flight of citizens from newspapers and TV news (Patterson, 2000). Other scholars, however, argue that news content reflects market pressures (Hamilton, 2003). If mass news outlets were to offer much more civic affairs content than they do, it would worsen the problem of audience loss.

The present paper tests this question for network TV news in the mid-1990s. News content is measured in two ways: First, from hand-coding of abstracts of each weekday story in 1995 and 1996, and second, from time spent on the O. J. Simpson murder trial, which was heavily covered in 1995 and is taken as an inverse indicator of civic affairs content. Audience share is measured from Nielsen ratings for the ABC, NBC and CBS evening news programs.

I find that news programs lost audience share when they ran more civic affairs news than competing shows, and gained share when they ran more O.J. news than competitors. This pattern is inconsistent with the position of media critics. But differences in news content across networks were small, with the result that effects were small and, in the case of O.J. news, statistically marginal. This pattern fits Hamilton's view that news managers calibrate civic affairs content to general market demand, such that no program's content has much advantage over any other's.

<div align="center">BACKGROUND</div>

By civic affairs news, I mean national, international, and local news that provides consumers with the information needed to discharge the duties of citizenship. This is in contrast to news whose main use is personal (e.g., weather forecasts) or entertainment (e.g., sports, celebrity doings). Researchers often use other terms to indicate whether the "civic affairs content" of news is high or low. These include: "hard vs. soft" news, "down market vs. up market", and "high tone vs. low tone" news. These concepts are similar in intent to the one used here.

<u>Explanations for civic affairs content</u>.

Many studies indicate that the civic affairs content of news has declined in recent decades. For example, in a study of several news outlets from 1980 to 1999, Patterson (2000) found that the percent lacking any public policy content rose from 35 percent to 50 percent. Similarly, in an examination of network news alone from 1969 to 1997, Zaller (1998) found that the percent lacking civic affairs content rose from 42 to 64 percent. A study for the Project of Excellence in Journalism (2003) reported that stories about government in selected newspapers fell from about 33 percent in 1977 to 27 percent in 2003. The crash in hard news seems to have affected all major news media, with local TV news affected most and newspapers least. (See also Adams, 1978, and Slattery and Hakanen, 1994).

One reason for the decline is widely accepted to be the perception of news executives that civic affairs news has limited audience appeal. As Bennett (1996) has written:

> All over the country the trend is to hire market research firms to find out how to
> win more subscribers. The main casualty of packaging the press has been the
> amount of space devoted to hard news — whether local, state, national, or
> international — which has dropped sharply as publishers bend to popular tastes
> and business pressures. (p. 20)

Besides its putatively limited appeal, civic affairs news is often expensive to produce. Hence executives eager for profits have slashed staff, reduced salaries, and pressured reporters to do "feel good" stories that cost little (Auletta, 1991; Bagdikian, 2000; Underwood, 1995; McManus, 1994). As McChesney (2000: 51) writes in *Rich Media, Poor Democracy*, "By the 1990s, traditional professional journalism was in marked retreat from its standards of the postwar years, due to the tidal wave of commercial pressures brought on by the corporate media system."

Many journalists and academics dispute that reductions in civic affairs content actually reduce

news audiences. As Dan Rather put it in a famous speech to the Radio and Television News Directors Association in 1993:

> Fear leads (news executives) to depend on thoughtless, lifeless numbers to tell them what fear convinces them are facts. 'American audiences ...won't put up with serious, substantive news of any kind.'

> Bull feathers. We've gone too far believing this nonsense. We've bought the lie that information is bad for news. (Cited in Downie and Kaiser, p. 136)

The journalists Leonard Downie, Jr. and Robert Kaiser compare executives who cut news content to save money to farmers who resort to "eating their seed corn." If newspapers "fail to provide information that is important to their communities and their readers, their claim on those readers' loyalty will weaken. And this is now a real danger."

In a similar vein, Thomas Patterson (2000) has argued that "the core consumer group" for news is "put off by low civic affairs content and is turning away from traditional news outlets because of it. Therefore, in pursuing peripheral news groups whose loyalty is weak, news programs jeopardize long-term viability."

Jay Hamilton (2003) parses the logic of news competition differently:

> The chase for additional consumers means that content will often reflect the preferences of those least interested in hard news, rather than the interests of loyal readers and viewers more interested in civic affairs (p. 2).

Given this proposition, it is easy to see how competition for viewers would lead to lower civic affairs content – or, if news organizations provide too much civic affairs content, to smaller audiences.   Hamilton thus continues,

> The problem for news programs is how to attract marginal viewers, those by definition that do not like the presentation of news enough to tune in regularly.

The news directors will select a mix of stories aimed at capturing the marginal

viewers while not alienating the average viewers. The result will be a mix of news

stories that may leave average viewers somewhat frustrated and marginal viewers

somewhat placated (p. 92).

This argument echoes that of Patterson on the difficulty of retaining the allegiance of both

core and peripheral news audiences. In contrast to Patterson, however, Hamilton sees pursuit of

marginal viewers and readers as an essential news strategy.

In his unpublished *Theory of Media Politics*, Zaller argues that journalists, like many

professionals, are more strongly motivated by professional values than by market

competition. Hence, journalists try, for the sake of impressing professional peers, to force

more civic affairs information on citizens than they really want.

These various perspectives have different implications for the expected relationship between

civic affairs content and size of new audiences. The argument that news consumers want more

civic affairs than they get implies that news outlets that provide marginally more of it will

maintain or grow audience share. Zaller's theory implies that journalists will drive off news

consumers by providing too much civic affairs content. Hamilton's position, with its emphasis on

balancing opposing market demands, implies that any effects of news content will be small – too

small for news managers to observe and eliminate, and perhaps too small for us to reliably detect.

Existing evidence on effects of civic affairs content.

Many studies have examined how civic affairs content affects audience size, but they tend to

have weak designs.   For example, Hamilton presents striking evidence that news programs select

topics in accord with the stated preferences of marginal news consumers, but does not show that

the strategy actually increases overall audience size (For similar examples, see Rarick and

Hartman, 1966; Lacey.1987; Lacey, Coulson, and Cyr, 1999).

Using survey data, Patterson (2000) distinguishes two groups of news consumers: One that prefers "news that sticks mainly to stories about major events and issues affecting the community and the country," and a smaller group that prefers more news about episodic news, such as crime. Sixty-three percent of respondents were in the first category, consumed more news than others, and more often rated the news as poor and getting worse. These findings are consistent with the view that news organizations hurt audience share by alienating core news consumers, but might be due to social desirability bias.

The Project for Excellence in Journalism has also examined the relationship between news content and audience size. Its key finding is that "By any measure of financial success, quality journalism sells," (Gottlieb and Pertilla 2001). Yet its measure of news quality has little to do with news quality in the sense I would use the term. It focuses, rather, on process factors such as use of experts, number of sources, and reportorial enterprise. Thus, a multi-sourced story about an ax-murder could score higher on news quality than a talking-head report on the city council.

Many other studies examine the relationship between news content and audience size. None, however, speaks directly to the question with a strong design.

DATA

Nielsen ratings

Audience size data for the three nightly network television news programs were obtained from the Nielson company for a fee. In 1995 and 1996 the company gathered ratings using their "people meter," an electronic box connected to each TV and VCR in the Nielsen sample. Household members were required to sign in at the start of each viewing session and to periodically reaffirm their presence. The size of the household sample at the time of our study was about 4,100. Ratings are calculated by Nielsen as the percent of households with TVs in which at least one TV is tuned to an evening news programs.

Figure 1 provides an overview of trends in size of TV news audiences, summed across all networks for each weekday except holidays in 1995 and 1996. The "M" and "F" markers in the figure refer to Mondays and Fridays. A few news events have been labeled.

Four sources of variation in audience size are visible to the naked eye. The most obvious is seasonal variation, which leads to bigger audiences in summer and smaller ones in winter. Regression analysis (not shown) yields an additional sharp effect for the onset and end of daylight savings. Outdoor opportunity, it seems, is a powerful competitor of TV news. The second source of visible variation is day of week: People are more prone to watch network news on Mondays than Fridays. The third source of variation is a trend toward lower viewership. The three networks have a total audience share of about 30 to 32 percent at the start of 1995 and a total share of about 26 to 28 percent at the end – a loss of about two percent of audience per year. The main reason for the loss is probably competition from cable TV over this period (Prior (2007). A fourth source of variation can also be glimpsed in the figure – the content of news. News about major terrorist events affecting Americans – the Oklahoma City bombing, destruction of a TWA passenger jet over Scotland – attracts larger audiences. International news, including terrorism of non-Americans, does not seem to win big audiences.

Figure 2 shows the Nielsen data separately by network.   The important new information here is that, while seasonal variation affects all three networks similarly, long-term decline does not. The ratings of ABC and CBS slip markedly over time, but NBC holds its audience.   As a result, NBC moves up in relative ratings from distant second-place to a tie with ABC for the lead. Whether differences in the news content explain NBC's relative success will be a focus below.

Regression analysis (not shown) on the Nelsen data finds that three factors – day of week, length of day, and calendar time – explain about 80 percent of the variation in Nielsen ratings visible in Figures 1 and 2. None of these explanatory factors has anything to do with the content

Figure 1. Trends in network news audience size, 1995-1996
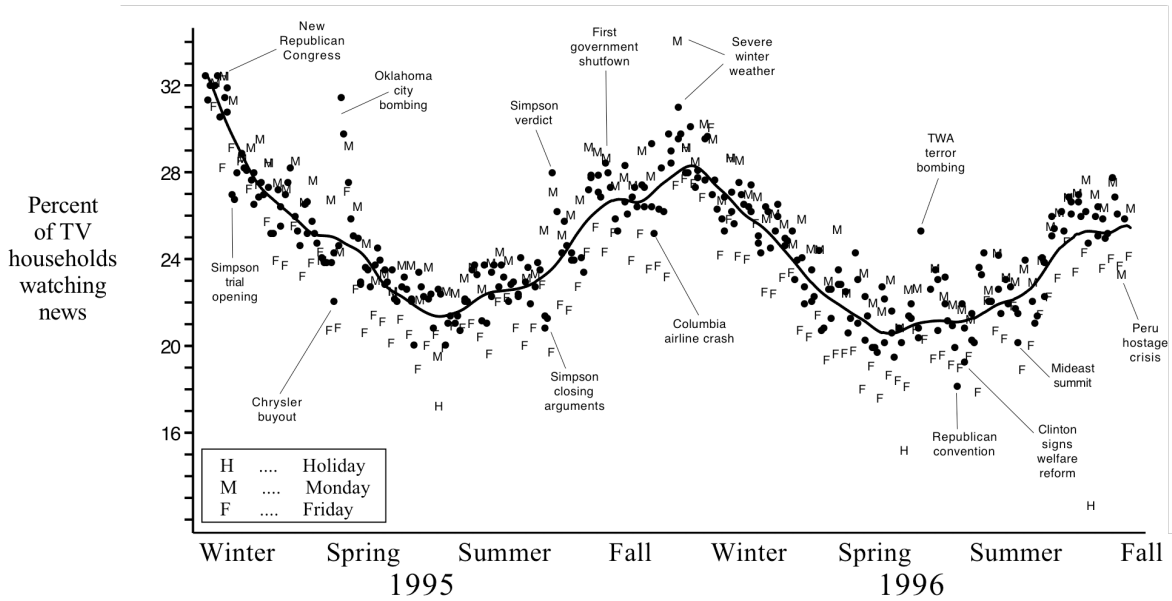
Note: Figure shows combined audience for ABC, CBS, and NBC. Each data symbol represents one weekday news day.

Figure 2. Trends in network news audience size for ABC, CBS, and NBC
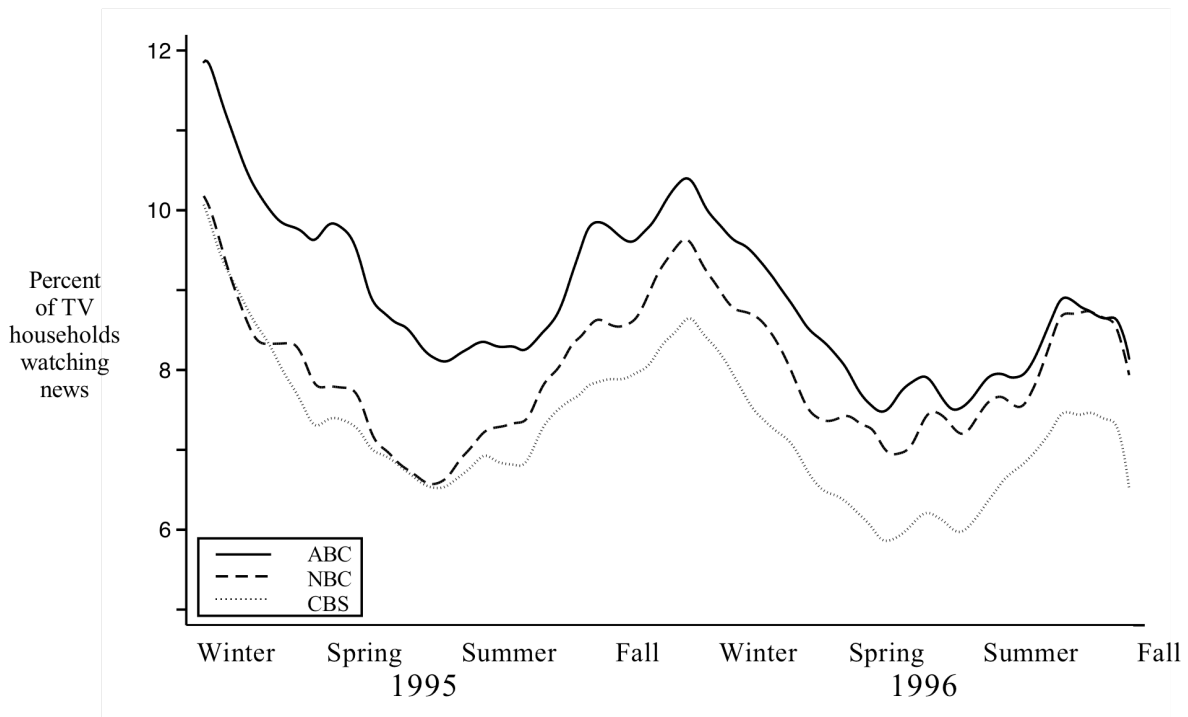
of news; they stand, rather, for things people can do with their time other than watch TV news.

The residuals from this (not shown) regression are plotted for ABC, CBS and NBC and summarized with lowess trend lines in Figure 3. The striking and critically important pattern is that – even after controlling for the strong effects of season, weekday, and time -- the audience sizes of the three news programs rise and fall together. The average correlation among the three sets of residuals is .79. This common variation may be due to many things, such as bad weather across the nation that keeps people indoors and available for TV news, but may also be due to the news itself – events that are either exciting or dull and that affect each network similarly. Failure to account for the common effects of raw news events on audience size could bias our estimates, causing us to mistake the effects of events for effects of how networks cover events.

Figure 3. Residual audience shares, controlling for month, day of week, and time
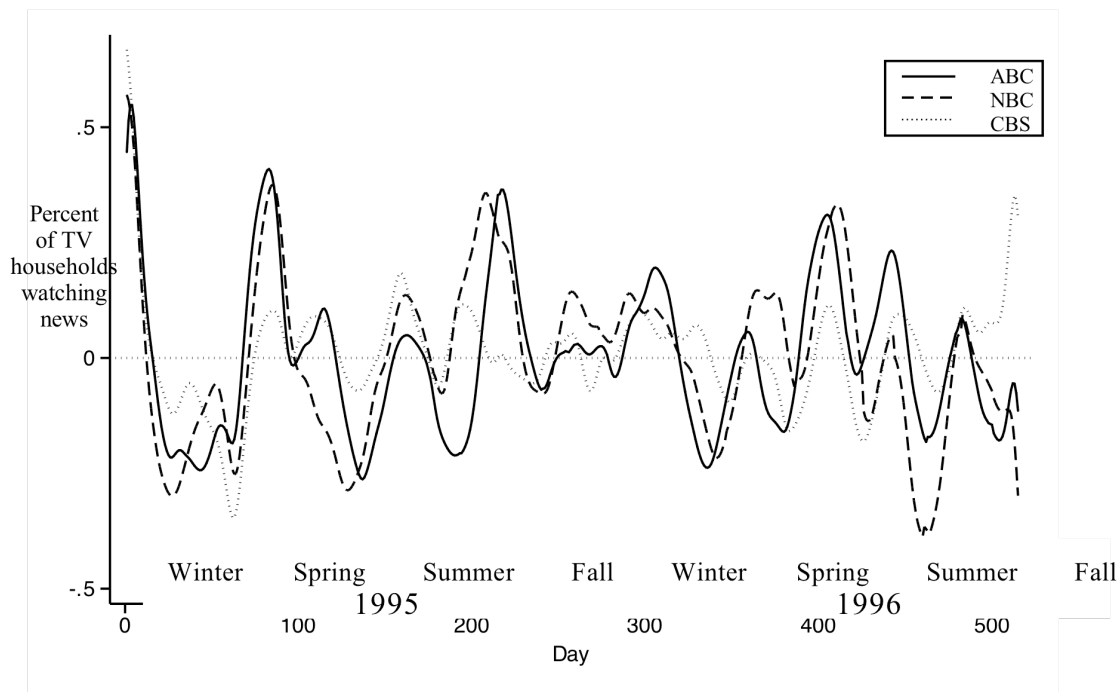
Note: Lowess lines show trend in residual audience ratings, after effects of month, day of week, and linear time have been statistically removed. Trends show how ebbs and flows of exciting news affect all networks similarly.

Civic Affairs content of news.

The three networks ran approximately 15,00 stories during the study period. This count includes

stories read by the anchor in the studio and anchor introductions to stories, but not anchor

summaries of stories coming later in the broadcast. The Vanderbilt Television News contains

brief abstracts of each story, along with the length of time it ran. An experienced coder was

engaged to rate each abstract on the extent to which the story involved civic affairs content.[1]

The coder was given the following instruction: *Using a scale that runs from one to five, assign*

high values to stories providing information useful to viewers for discharging the duties of

citizenship; assign low codes to stories having only personal or entertainment value. Information

about government, politics, international affairs, and trends in economics, society, and public

policy was identified as likely to fall within the concept of civic affairs information. However, the

coder was told that government or politics stories that focused solely on human interest could be

given low values, and that topics in sports or entertainment – such as the use of drugs in major

league sports or changing racial stereotypes in movies -- could be scored high on civic affairs if

they intersected questions of political importance. Weather stories should get low rankings unless

they raise political questions, such as the competence of relief efforts or electoral implications.

Table 1 below provides a random sample of Vanderbilt abstracts and the codes assigned to them.

Preliminary analysis showed that the civic affairs content of stories at the beginning of each

broadcast affected audience share but that stories near the end had little effect. Accordingly, the

analysis below focuses on the first five stories in each broadcast.

The second measure of news content is amount of coverage on the trial of O.J. Simpson, a

celebrity athlete charged with murdering his ex-wife and her boyfriend. Of the 186 news days in

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1 The coder is Mark Hunt, a 1992 graduate of UCLA. He began working as an undergraduate
volunteer research assistant in 1990 and continued to do so after leaving UCLA. He has done
coding for Zaller and Chiu (1995), Zaller (1998), and Cohen, Karol, Noel, and Zaller (2008).

Table 1. *Examples of story codes*

Abstracts and ratings of ABC News from Vanderbilt Film Archive
January 1. 1995.

4. (Brookline, Massachusetts: Jim Hickey) Two incidents in the Boston area in which people were shot at abortion clinics by John Salvi featured; scenes shown from Brookline, Massachusetts, of the victims. [Anti-abortion activist Donald SPITZ - comments.] [FBI Dick SWENSEN - comments on the issue.] [Employer Rick GRIFFIN - says he was a loner and hated abortions.] [Massachusetts NOW Ellen CONVISSER - says they need to be taken seriously.]

2. (Studio: Carole Simpson) Four people in Petersburg, Virginia, reported dead following a New Year's Eve fire at the Southside Medical Center; scenes shown.

2. Four separate fires in Philadelphia, Pennsylvania, that killed five people and a fireworks display in the Philippines in which 11 people were killed and hundreds injured reported.

5 (Studio: Carole Simpson) Report introduced. (Grozny: Richard Gizbert) The war-torn city of Chechnya, Russia, featured; scenes shown of the fighting, burned bodies and building destruction. [Chechen soldier Magamed MAGAMEDOV (through translator) - talks about the Russians attempt to bomb him.] Scenes shown of Chechen soldiers fighting. [Captured Chechen SOLDIER (thru translator) - tells his family to wait for him.]

5. (Moscow: Gillian Findlay) The political damage to Russian President Boris Yeltsin due to the ferocity of the bombing in Chechnya examined; scenes shown of Yeltsin on Russian television toasting the new year. [RUSSIANS - says they do not understand why they are fighting in Chechnya.] [Former prime minister Yegar GEIDAR - says that Yeltsin is making a big mistake.] [US-Canada Institution Andrei KORTUNOV - comments.]

5. (Studio: Carole Simpson) The four month cease-fire agreement reported starting today in Bosnia. (West Bank: Dean Reynolds) The Palestinian protest of Jewish settlements in the West Bank reported; scenes shown of the protest. A proposed new road by the Israeli government for the Jews to travel to Jerusalem that would destroy private orchards examined. [Bizar MUGRABBI, orchard owner Hasan ALI - comment on this as evidence of bad faith by the Israelis.] [Israeli government spokesman Uri DROMI - comments on the planned road.] [Muhammed Abu KADIR, cousin AHMED - comment on the Israeli encroachment on their land.]

2 (Studio: Dick Schapp) Football game updates given and a look at sports in 1994 featured; scenes shown of the 1994 year in sports. [Ice skater Johann KASS - comments on money.] [Golfer Tiger WOODS, basketball player Adonal FOYLE, Bosnian BOBSLEDDER, Joseph COLUMBA, chess PLAYER - comment on sports and various other topics.] [2]

1. Studio: Carole Simpson) The swearing in of New York Governor George Pataki shown.

3 (Studio: Carole Simpson) President Clinton's tardiness to a Renaissance weekend lecture in Hilton Head, SC, reported; scenes shown of the president.

3. Commentary and conjecture concerning the future for 1995 offered.

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[2]   The reference to money is what makes this story a 2 rather than a 1.

the trial period, NBC carried O.J. news on 175 of them. ABC and CBS had coverage on 138 and

141 days. I take this level of coverage as an inverse indicator of civic affairs news and a positive

indicator of the soft news that some scholars believe is undermining news audiences. To measure

it, I use time devoted to any aspect of the Simpson case at any time in the study period, based on

the Vanderbilt abstracts.

Note that O.J. coverage is counted in both content measures: As the average of its daily Civic

Affairs (CAC) codes,[3] and as a time segment in each day's news. The correlation between overall

CAC codes and logged seconds of OJ coverage is -0.37.

Table 2 below provides basic distributional information on the two measures. A notable

feature is that differences among the networks CAC scores are small. The mean level for ABC is

only .24 units higher than the mean for NBC (3.65 vs. 3.41). Network differences on the O.J.

measure are larger but not absolutely large. During the trial period, in particular, NBC devoted

about 3.6 minutes per broadcast to the case, compared to only 2.1 for ABC. In a 23-minute news

hole, a mean difference of 90 seconds is moderately large.

Table 2. News Content Measures

| Civic Affairs Content	ABC	NBC	CBS
Scale average	3.65	3.41	3.59
SD	(1.23)	(.64)	(1.11)
OJ Simpson coverage			
Two-year average	0.97	1.59	1.25
SD	(1.90)	(2.64)	(2.03)
Average in trial period	2.08	3.60	2.87
	(2.37)	(3.10)	(2.38)

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[3] Some O.J. coverage focuses on significant political issues, such as functioning of the judicial
system, in which case it gets a high CAC score. But most O.J. news receives low CAC scores.

It is notable that ABC, the audience leader at the start of our period, has the highest score on the Civic Affairs measure and the lowest amount of trial coverage. NBC News, which rose to catch ABC, has the lowest Civic Affairs score and the most O.J. coverage. This is a clear though preliminary indication that high tone news might be bad for ratings.

Figure 4A shows how Civic Affairs content varies over time. ABC always led in Civic Affairs content, but the lead diminished at the end of 1995 when all three networks converged on similar news content. These and other differences in the rankings of the networks affect the statistical power of our analysis to detect the effects of news content, as I discuss further below.

Note also how the Civic Affairs scores of the networks tend to rise and fall together. The correlation in the day-to-day levels of Civic Affairs scores of the three networks in Figure 4A is about r = .60. This common variation reflects, at least in part, the nature of events that occur in a given period. For example, coverage of the Oklahoma City bombing led news programs on all networks for about two weeks and received fairly high CAC scores. Bombing news also attracted large audiences. In this way, temporal variation in the nature of events, audience share, and Civic

Figure 4. Scores on News Content variables
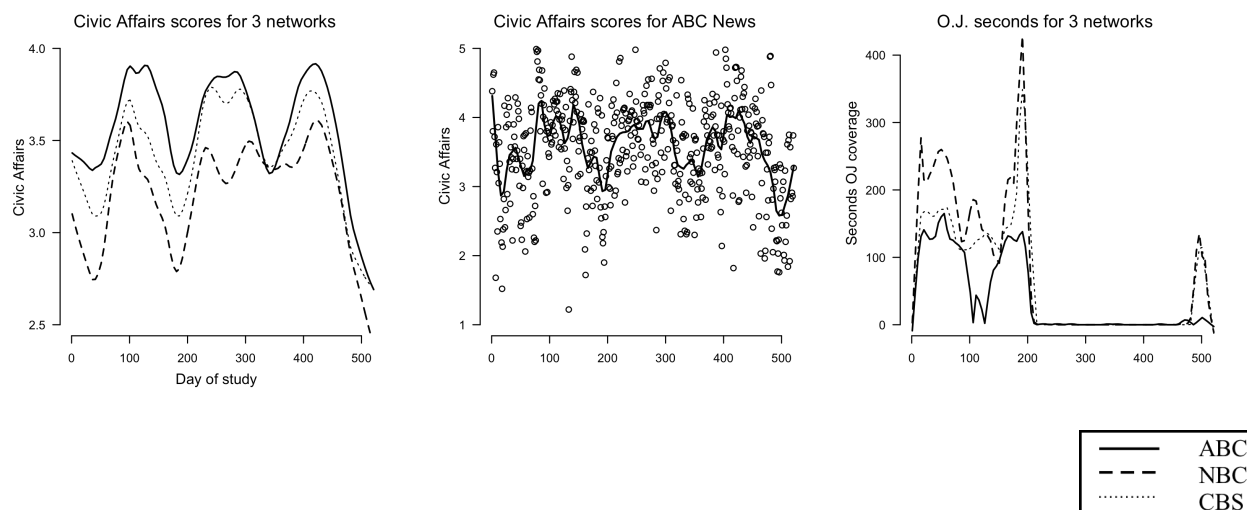
Affairs scores became linked. I aim in my analysis to break this link by focusing on the coverage choices of journalists, independently of the particular events they were covering.

Figure 4B, which shows daily scores of ABC News alone, makes the additional point that the moving average masks a huge amount of day-to-day variation in Civil Affairs content. Similar day-to-day variation is present in the Civic Affairs scores of the other two networks.

MODELING STRATEGY

A key point in the discussion so far has been that the nature of news events may affect both audience size and news content, thereby confounding attempts to estimate the relationship between the latter two. To deal with this problem, I will focus analysis on differences in scores of pairs of networks. To see how this works, imagine an event that is both highly engaging and high in civic affairs content. Further imagine that, in a comparison of NBC and ABC, I find that NBC has larded its story with frivolous detail (e.g., what the politicians were wearing), while ABC has stuck to news substance.   The ABC story might then receive the top CAC score of 5, while NBC gets a lower score, 4. I now subtract the two CAC scores and keep the one-point difference as the Civic Affairs score. This discards the high raw scores – 4 and 5 are above average scores on the CAC scale --as due to the nature of the event, and keeps as independent variable the part of news content due to journalistic discretion. As dependent variable, I use the difference in the audience share of ABC and NBC on the day of the event. By this procedure, I strip the impact of the nature of the event from both the independent and dependent variables.   Over the two-year study, within-day differences in Civic Affairs content of the two networks are used to predict within-day differences in their audience. I perform this same analysis for each pair of networks.

<u>Statistical models</u>

I analyze the news content and audience data with time series models, including lag terms to capture the effects of past differences. An issue in these models is how long the effect of changes in the independent variables continue to affect the dependent variable. If, for example, one show runs one more O.J. than the other, how long does it continue to affect audience share?

Within the field of psychology, this problem falls under the rubric of learning and forgetting. In a paper called "One Hundred Years of Forgetting," two psychologists, David Rubin and Amy Wenzel, obtained all available data on learning and forgetting from extant studies and analyzed it in different statistical models (Rubin and Wenzel, 1996). A key finding was that forgetting (i.e., decay of a learned response) can take different forms and that different models are needed to capture it. In this paper, I test two quite different models of persistence and decay. The first is the Auto Distributed Lag (ADL), which is favored in political science (DeBoef and Keele (2008). For our purposes, the ADL model is written as:

$$\Delta \, Nielsen_{nt} = \alpha_0 + \alpha_1 \Delta \, Nielsen_{nt-1} + \beta_0 \, \Delta \, CAC_{nt} + \beta_1 \, \Delta \, CAC_{nt-1} + \beta_2 \Delta \, CAC_{nt-2}$$
$$+ \beta_3 \, \Delta \, OJ_{nt} + \beta_4 \, \Delta \, OJ_{nt-1} + \beta_5 \Delta \, OJ_{nt-2} \, ... + \varepsilon_t$$

Difference in Nielsen ratings for each time *t* and each network pair *n* is thus modeled as a response to ratings difference in the previous period, news content difference in the current period, and news content difference in the past. Controls and more lags may be added as needed.

The central feature of the ADL model is specification of a geometric decay process – a process, that is, in which a fixed proportion of initial "learning" persists from one period to the next. If, for example, the persistence term (α_1) is estimated to be 0.5, then the amount of an initial one-point effect that remains five days later is 0.5^5, or about .03. After 30 days, the remaining effect is tiny, 0.5^{30}. In the Rubin and Wenzel study, geometric model decay models often fit

forgetting data less well than other functional forms.

My second model is the Weibull function, which was a consistently strong performer in the Rubin and Wenzel tests. For our purposes, it can be written as:

$$\Delta Nielsen_{nt} = a_1 \sum_{t=0}^{T} \exp(-b\,t^{.5})\,\Delta PAC_{nt} + a_2 \sum_{t=0}^{T} \exp(-b\,t^{.5})\,\Delta OJ_{nt} \ \ .... + e_{nt}$$

In this model, news content (CAC or O.J.) scores are formed into weighted sums over **T** time periods and made to affect Nielsen scores through the pair of **a*** coefficients (one for CAC, one for OJ); the **b** coefficient determines the rate of decay.

The Weibull function specifies a relatively gentle process of decay. The characteristic difference between it and the ADL model is illustrated in the figure below. Although other curves could, of course, be drawn, the regular difference is that the ADL function moves more quickly toward an asymptote of total decay.
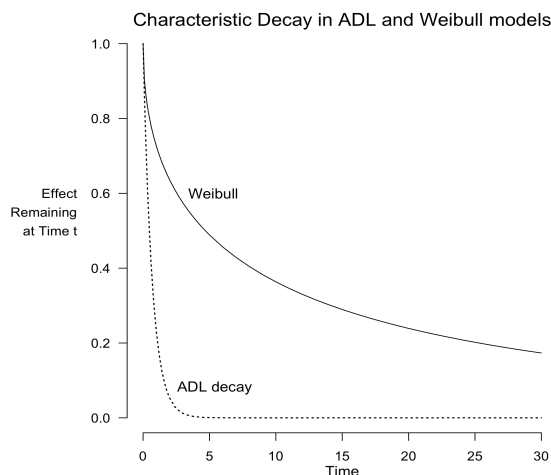
There is little basis, theoretical or empirical, for expecting decay in audience response to news content to follow one of these patterns rather than the other. But the question is important and will therefore be tested rather than assumed.

Transformation of O.J. variable.

Data on O.J. coverage, measured in seconds of news time, are strongly skewed. In keeping with

standard practice, I transformed them to maximize fit. For the ADL model, a log transformation

produced the best results, and for the Weibull model a square-root transformation worked best.

But units of logged and square-rooted seconds of O.J. coverage have little intuitive meaning.

I have therefore further transformed the measures so that each one unit of the O.J. measure

corresponds to just over two minutes news time, which is the median length of a standard story.[4]

ADL Model Results

As explained, I estimate the ADL model for each pair of networks: ABC vs. NBC, ABC vs. CBS,

and NBC vs. CBS. Results are shown in Table 3 on the next page, with coefficients in bold if

statistically significant at the .05 level, two-tailed. Two-tailed p-values are shown in parentheses.

Many devils lurk in the details of this table, so let me carefully work through them, beginning

in column 1. The lagged value for Nielsen ratings is .23; this means that only about one-quarter

of any change in audience share carries over to the second day – including any change due to

CAC score or O.J. coverage. The amount that carries over to the third day is even less, $.23^2$, and

so forth. Thus, as often occurs in ADL models, little change persists beyond a few time periods.

The next three coefficients in column 1 capture the specific effect of a one-unit change in

CAC scores on audience ratings. The same-day effect is -.065, which, to take a concrete example,

means that if ABC's news package is one point higher on the CAC scale than NBC's, it will lose

about 6/100ths of a percentage point of relative audience share. About 2/100ths of this effect (.23

x .065) will carry over to the next day, when a lagged effect of -.08 kicks in. The total second-

day effect – from loss that carries over from the first day, plus more people staying away on the

second day – is about .10 (.02 + .08) percentage points. About a quarter of this effect (.23 x .10)

then carries over to the third day, when the final lag, +.02, takes effect. After this point, the

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[4] Since the length of stories is sharply bimodal, I use the median of stories longer than 20
seconds, which is 130 seconds. The rescaled variables specify the difference between 130 seconds
and 260 seconds – i.e., between one story and two stories – as one unit.

Table 3. Coefficients from ADL model

	All Pooled (1)	All Pooled (2)	ABC vs. NBC (3)	ABC vs. CBS (4)	NBC vs. CBS (5)	Pooled 1995 (6)	Pooled 1996 (7)
Lagged Nielsen							
Time t-1	**.23**	**.21**	**.16**	**.24**	**.23**	**.23**	.15
	(.01)	(.01)	(.00)	(.00)	(.00)	(.02)	(.10)
PAC score							
Time t	-.065	**-.072**	**-.076**	**-.089**	-.052	**-.066**	-.075
	(.06)	(.03)	(.03)	(.03)	(.16)	(.01)	(.17)
Time t-1	-.080	-.072	**-.126**	-.070	-.013	-.115	-.013
	(.14)	(.18)	(.00)	(.08)	(.73)	(.16)	(.68)
Time t-2	.022	.024	.038	.020	.015	.037	.017
	(.13)	(.08)	(.28)	(.61)	(.69)	(.18)	(.14)
Previous month		**-.47**	**-.56**	-.19	**-.46**	-.51	-.38
		(.02)	(.00)	(.50)	(.00)	(.09)	(.08)
Log coverage							
Time t	.011	.011	.001	**.023**	.005	.019	-.007
	(.26)	(.30)	(.95)	(.03)	(.75)	(.22)	(.59)
Time t-1	-.007	-.004	-.004	-.007	-.002	.005	-.023
	(.37)	(.10)	(.68)	(.51)	(.88)	(.33)	(.11)
Time t-2	.025	.023	.033	**.027**	-.002	**.019**	.024
	(.09)	(.11)	(.00)	(.01)	(.88)	(.02)	(.28)
Previous month		.044	.027	.083	.026	.019	.064
		(.11)	(.45)	(.06)	(.68)	(.49)	(.10)
N	1482	1401	460	474	467	691	710
R-square	0.51	0.51	0.50	0.20	0.32	0.55	0.47
CAC joint significance	0.11	0.02	0.00	0.09	0.02	0.17	0.12
OJ joint significance	0.12	0.09	0.03	0.00	0.98	0.04	0.18
LRM for 1 PAC point	**-0.17**	**-0.15**	**-0.21**	-0.17	-0.06	**-0.19**	-0.15
One month CAC		**-0.47**	**-0.56**	-0.19	**-0.46**	-0.51	-0.38
CAC total	-0.17	-0.63	-0.77	-0.36	-0.52	-0.70	-0.54
One day OJ LRM	0.04	**0.04**	0.03	**0.05**	0.01	**0.05**	0.04
One month OJ		0.04	0.03	0.08	0.03	0.02	0.06
OJ Total	0.04	0.08	0.06	0.14	0.04	0.07	0.10
"Soft News" Total	0.20	0.71	0.83	0.50	0.55	0.77	0.64

Note: Estimation is by OLS in Stata, with standard errors clustered by day in the pooled models in columns 1, 2, 6, and 7. Nielsen data passed tests of non-stationarity. Additional lags were tested for all time-series variables and found unwarranted. Placebo tests disclosed no significant evidence of reverse causation of independent and dependent variables. Coefficients are shown in bold if statistically significant at the .05 level, two-tailed. Two-tailed p-values are shown in parentheses. Pooled models include dummy terms for network pairs, time, and their interaction. Other control variables (e.g., for seasons) were tested and founded to be unwarranted.

impact of the initial one-point difference in CAC score is largely extinguished.

The three coefficients that apply to coverage of the OJ trial indicate smaller effect sizes. The largest coefficient is the second lag, which implies that one additional O.J. story increases audience share, relative to competition, by about 3/100ths of a percentage point.

None of these coefficients is statistically significant. Even taken jointly, as shown in the lower half of the table, neither the three Civic Affairs coefficients (p=.11) nor the three O.J. coefficients (p=.12) achieve significance. Stronger results, however, are ahead.

Because the total impact of news content is spread across three coefficients – for current impact, lagged impact, and decay – it is clarifying to summarize all information in a single statistic. This statistic is called the Long Range Multiplier, or LRM, and its value is shown toward the bottom of the column. For the CAC scale, the value is -.17. This number, which is bolded to indicate statistical significance[5], says that if CAC scores were to rise permanently by one unit, the total continuing effect on audience share would be a loss of 17/100ths of a percent. For one additional O.J. story, the LRM indicates that the effect would be a gain of 4/100ths of a percentage point, which is not bolded and so is not statistically significant.

These effects are quite small. They are small in part because, as noted earlier, the geometric decay specified by the ADL model makes it difficult for effects to persist beyond a few periods. (Additional lags were tested but found non-significant.) To weaken this feature of the model, I created CAC and O.J. variables that tally scores over one month.[6] Inclusion of these variables, as shown in column 2, produces bigger impacts. Elevating CAC scores by one unit for one month is associated with an almost half percentage point (0.47) loss of audience share. Including the LRM for the other three terms, which is shown in the table as .15, the total impact of one CAC unit for

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[5] Statistical significance is calculated from Eq. 9 in Barsden, 1989. Unlike joint test of significance, Barsden statistic is designed to test the cumulative effect of variables.

[6] That is, I combined variables for lags 3 to 30 into a monthly summary; use of this variable is equivalent to adding 28 individual lag terms and constraining their coefficients to be equal.

one month is to reduce audience share by about 63/100ths of a percentage point. At the same

time, one additional O.J. story for one month raises audience share by 8/100ths percentage points.

These CAC and OJ effects are largely orthogonal, so a network that reduced its CAC score by one

point, while running one extra O.J. story, might expect to reap a long-term gain of about 71/100s

of a point of relative audience share.

To check the stability of these results, I have run separate models for each pair of network

competitors, as reported in columns 3, 4, and 5. I have also run separate models on the two halves

of the data, as shown in columns 6 and 7. Results from these smaller samples include many non-

significant coefficients, but the stability of the basic pattern demonstrates that findings from the

pooled model are broadly present in the data and not dominated by any small segment of it. (I

provide a summary discussion of statistical significance at the end of the section.)

Weibull model results

The coefficients for the Weibull model are shown in Table 4, but are best evaluated graphically,

as in Figure 5, as shown on the next pages. This figure shows that small initial effects decay

quickly, but do not go to zero in the 30-day study period. Results from the pooled ADL model are

also shown in the Figure and are similar, except less smooth. This figure gives a nice picture of

how the two models handle decay.

Effect sizes for the two content variables are shown at the bottom of Table 4. The total effect

for a one-unit bump in the Civic Affairs scale for one month is -.62 points, which is nearly the

same as the comparable ADL effect in Table 4. The effect of one O.J. story for one month is .26

points of audience share, which is bigger than the ADL effect in Table 4 but also very noisy.

Both the ADL and Weibill results make it appear that Civic Affairs content has more impact

than O.J. coverage. Is this impression correct?

Because the units of the two variables are as different as apples and oranges, we cannot make

Table 4. Coefficients for Weibull model

	All Pooled (1)	ABC vs. NBC (2)	ABC vs. CBS (3)	NBC vs. CBS (4)	Pooled 1995 (5)	Pooled 1996 (6)
Lagged Nielsen						
Time t-1	**0.20**	**0.14**	**0.21**	**0.22**	**0.23**	0.15
	(.00)	(.00)	(.00)	(.00)	(.00)	(.06)
PAC score						
Impact	**-0.06**	**-0.07**	-0.06	0.00	**-0.07**	-0.02
	(.04)	(.00)	(.08)	(.53)	(.00)	(.57)
OJ coverage						
Impact	0.03	0.02	**0.08**	0.00	0.05	0.01
	(.26)	(.08)	(.00)	(.81)	(.35)	(.64)
Decay	**0.39**	**0.36**	**0.63**	-0.35	**0.57**	0.13
	(.02)	(.00)	(.00)	(.32)	(.01)	(.75)
N	1401	460	467	474	688	707
R-square		0.52			0.52	0.46
1-unit CAC effect	-.62	-.81	-.38	-.64	-.50	-.52
1-story OJ effect	.28	.19	.48	.05	.33	.20
Total "soft news"	0.90	1.00	0.86	0.69	0.83	0.72

Note: Estimation is by nls in R, with standard errors clustered by day in the pooled models in columns 1, 2, 5, and 6. Clustered standard errors were calculated with the Sandwich package; I thank Jeff Lewis for help in producing these results. Coefficients are shown in bold if statistically significant at the .05 level, two-tailed. Two-tailed p-values are shown in parentheses.

Figure 5. Effects of News Content on Audience Share

One unit of Civic Affairs Content   One OJ Story (130 seconds)
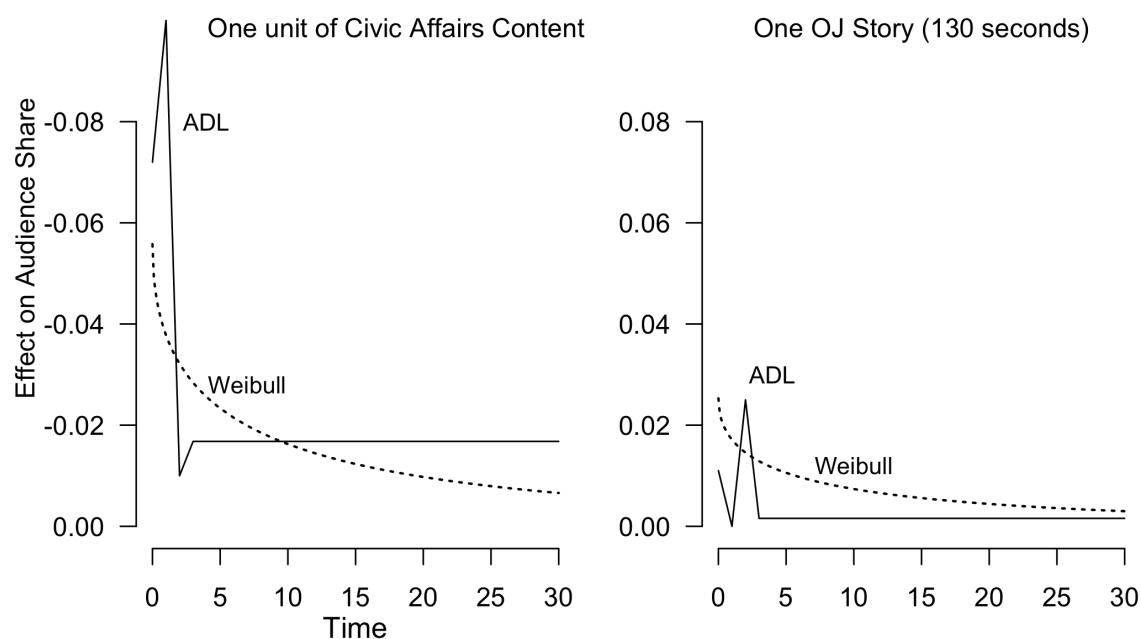
simple numerical comparisons. This said, however, I scaled the O.J. measure so that a one-unit change would correspond to running two O.J. stories rather than one. My sense is that such a difference would be fairly noticeable to viewers – and, moreover, about as noticeable as an average difference of one unit on the Civic Affairs scale (see Table 1). Based on this sense of the measures, I do think Civic Affairs content mattered more than O.J. content.

Columns 2 through 6 of Table 4 estimate the Weibull model in different segments of the data. For one model, NBC vs. CBS in column 4, the model breaks down, producing implausible coefficients.[7] Yet even here, the model forecasts effect sizes that are in line with estimates from other subgroups. Thus, while the models are not reliable at the level of individual coefficients, they are fairly consistent in the substantive claims they make.

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[7] A positive value on the decay term indicates that effects grow over time, which is unlikely. But see footnote 7 below.

More broadly, the basic similarity of results from two quite different models and several subgroups gives confidence that the findings reflect a real-world phenomenon rather than an arbitrary modeling strategy.

<u>A comment on statistical significance</u>

An important reason for the often low p-values in Tables 3 and 4 is that, as noted earlier, the networks differ little in their news content scores. It is, of course, hard to find important effects of content differences that are, to begin with, small.

But at points at which Figure 4 (a few pages back) shows content differences between network pairs to be higher, significance levels are higher too. Note, for example, that the CAC scores of ABC and NBC in Figure 4 are larger than for other pairs, and that significance levels for the effects of Civic Affairs in Tables 3 and 4 are higher for this network pair as well. Similarly, the three networks differ from each other more in 1995 than in 1996, and the impact of CAC scores is more reliably estimated for 1995 than for 1996.[8]

The same applies to O.J. effects. As Figure 4C shows, ABC differs more from NBC and CBS in O.J. coverage than the later vary from each other, and the statistical significance of O.J. coverage in Tables 3 and 4 follows this pattern.

Even making allowance for relatively small content differences between the networks, however, the effect of O.J. coverage remains statistically marginal. Note, however, that we had no theoretical expectation that O.J. coverage would boost audience share. The expectation was that, as excessive soft news, it would drive off core news viewers and thereby depress audience share. An effect that is only marginally significantly positive is a big defeat for this expectation.

<center>CONCLUSION</center>

We noted earlier that NBC gained relative audience share during a two-year period in which it

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[8] The failed model of NBC vs. CBS in Table 4 works well when run on data from 1995 only.

ran less Civic Affairs content and more O.J. coverage than its competitors, thus suggesting that audiences prefer softer to harder news. More rigorous analysis now supports the same inference: Day by day, the program that ran softer news tended to gain audience share.

In estimating the impact of news content, I simulated one-unit changes in Civic Affairs and O.J. stories, which together forecast a roughly .75 percent increase in audience share. However, the mean differences between ABC and NBC during the study period were .24 CAC units and 0.40 O.J. stories, which can together explain only about a quarter percent difference in ratings. Given that NBC gained fully 1.8 points of audience share during the study period, this result falls short of demonstrating how NBC became the audience leader.

The result should nonetheless give pause to critics, both journalistic and academic, who argue that journalists could win bigger audiences by offering more civic affairs news. To the contrary, network journalists in the 1990s seemed already to be offering slightly more such content than audiences wanted. This finding is consistent with Zaller's argument about the motives of professional journalists, and with Hamilton's argument that journalists try to balance the preferences of core and marginal consumers. If Hamilton is right, content effects could not have been very big without news managers noticing and snuffing them out. (One must wonder whether the convergence of all three networks on lower Civic Affairs scores toward the end of 1996 was an effort to neutralize NBC's apparent advantage on this front.)

What this paper shows, then, is not that content differences make a big day-to-day difference in ratings, but that news managers face audience pressures to offer the kind of news they do.

Yet a news critic might retort: "Yes, but the findings of this study apply only within the commercially driven news culture that now exists. If professional journalists were freed from commercial pressures, they could attract large audiences to civic affairs news."[9]

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[9] I am indebted to Larry Bartels for raising a variant of this retort.

I accept this point and go further. The findings of this study apply only to the effects of relatively small changes in news content within the news culture that existed in the mid-1990s. One cannot assume that results would generalize to the 1960s, when network news faced less competition from other media, or to the 2010s, when it faces more. And certainly the findings do not apply to an imaginary American society in which commercial pressures are absent. But the paper's findings nonetheless constitute evidence of an important problem for democracy – the existence of a disconnect between the quality of news citizens need in order to discharge their democratic responsibilities and the quality of news they consume when given choice.

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